# Fig. 1



Figure 1: Sample present invention deployment across data centers
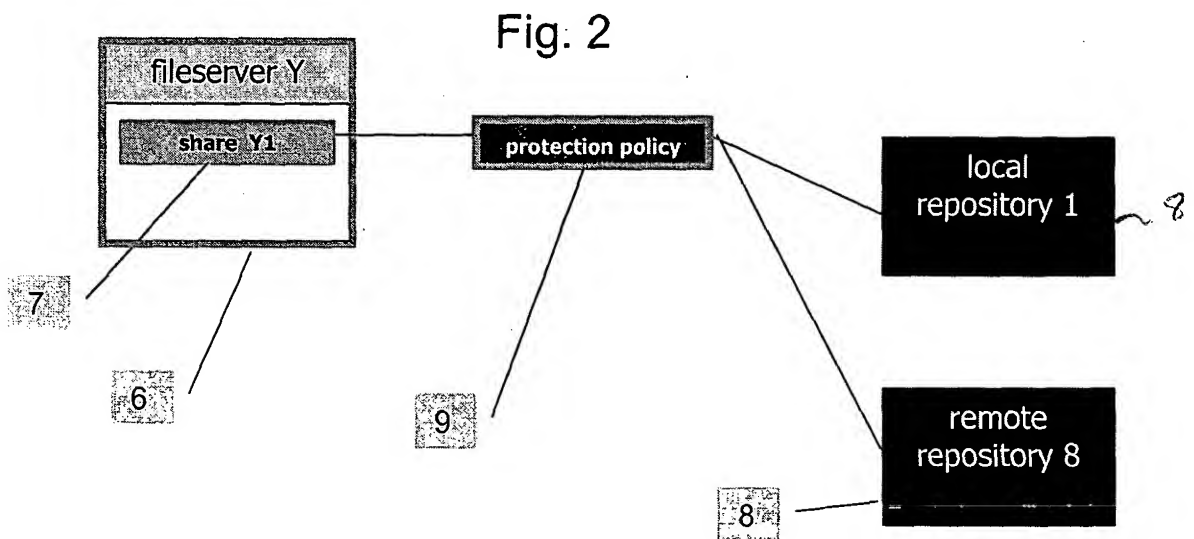
# Fig. 2



Figure 2: Association between fileserver shares and their repositories via protection policies
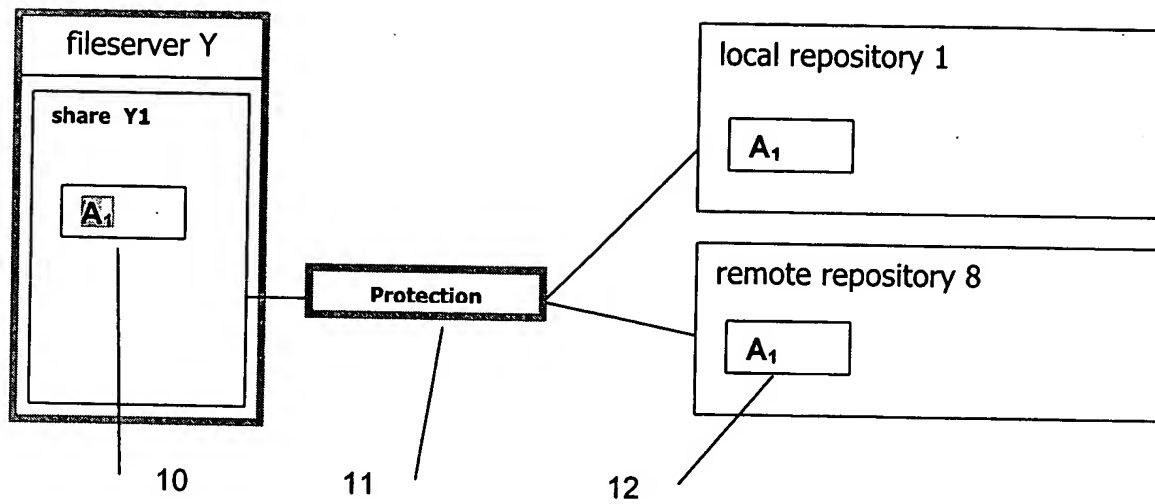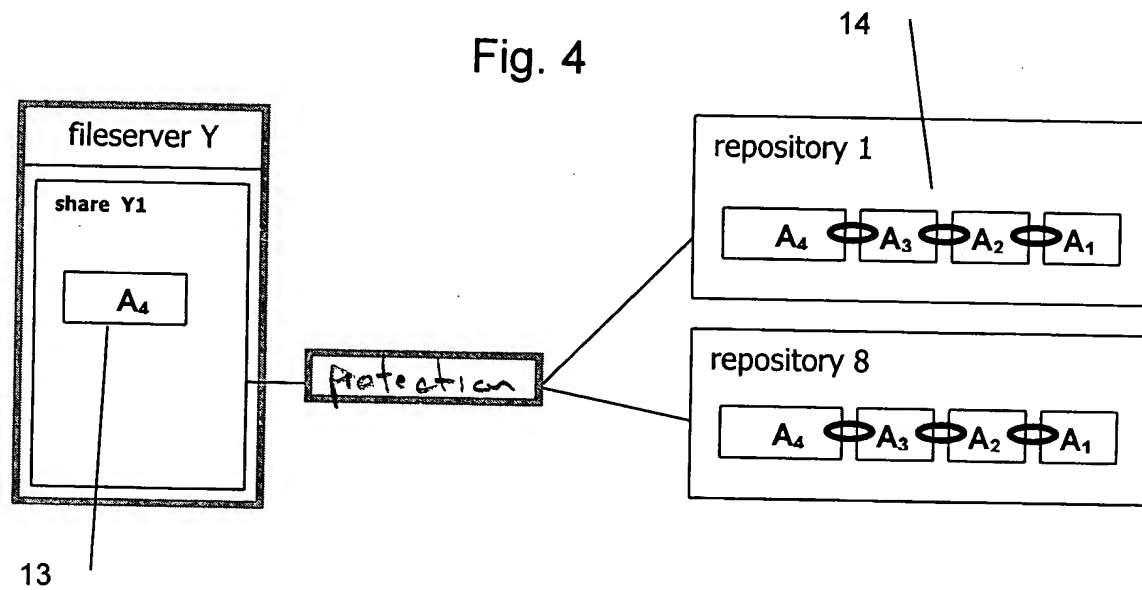
# Fig. 3



fileserver Y

share Y1

$A_1$

Protection

local repository 1

$A_1$

remote repository 8

$A_1$

10          11          12

Figure 3: Replication

# Fig. 4



14

fileserver Y

share Y1

$A_4$

Protection

repository 1

$A_4$ ⬌ $A_3$ ⬌ $A_2$ ⬌ $A_1$

repository 8

$A_4$ ⬌ $A_3$ ⬌ $A_2$ ⬌ $A_1$

13

Figure 4: Versioning

fileserver Y

Fig. 5

share Y1

$A_1$

15

local repository 1

remote repository 8

$A_1$

$A_1$
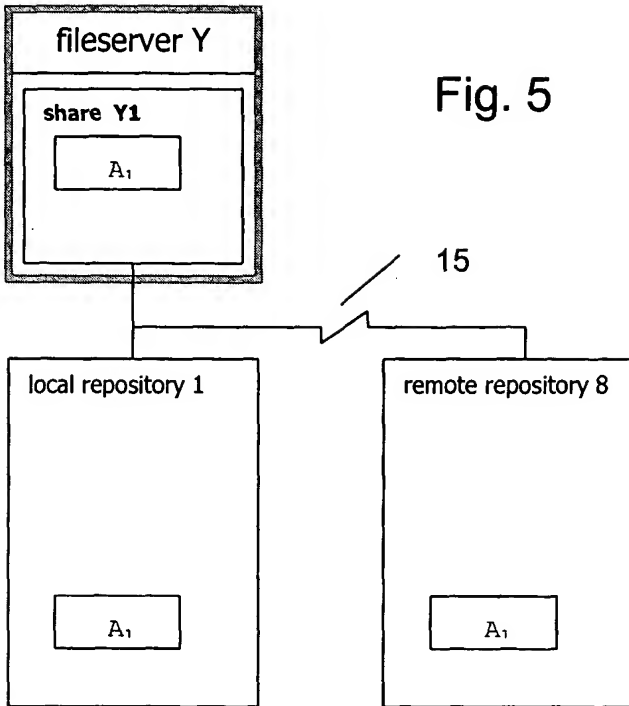
Figure 5 - Remote Replication with Delta Compression - Step 1

fileserver Y

Fig. 6

share Y1

$A_2$

$(A_2 - A_1)$

local repository 1

remote repository 8

$A_2$

$A_{1D}$

$A_1$
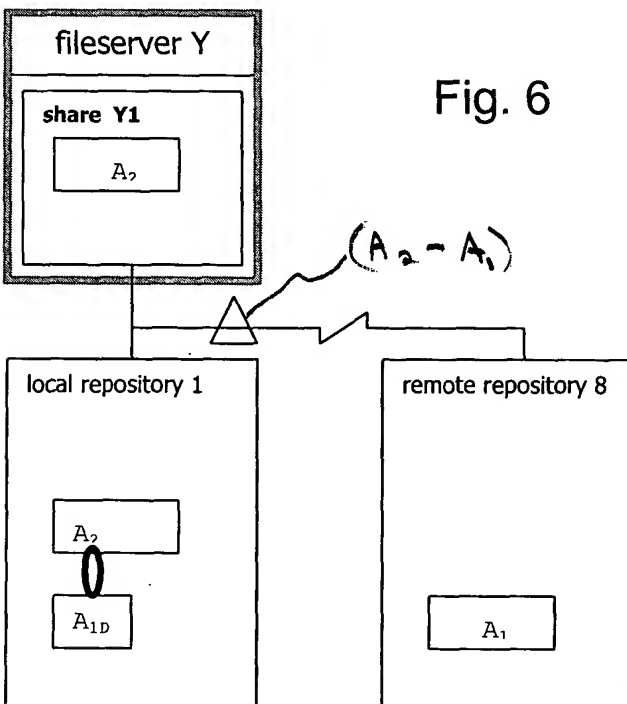
Figure 6 - Remote Replication with Delta Compression - Step 2

# Fig. 7

fileserver Y

share Y1

$A_2$

local repository 1

$A_2$

$A_{1D}$

remote repository 8

$A_2$

$A_{1D}$

17
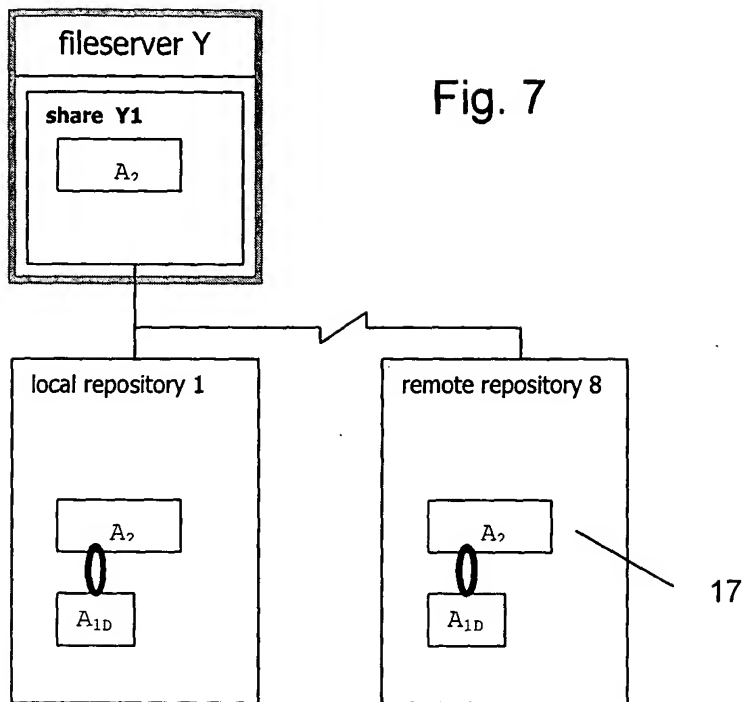
Figure 7- Remote Replication with Delta Compression - Step 3

# Fig. 8



Fig 8. The present invention's protection policy

**Fig. 9**

Client Network

NFS, CIFS, FTP

29

36

35 — Location Manager — Location Cache

31 — Filter Driver

32 — filesystem

33 — Mirror Service — Policy Cache

27 — File Xfer — fileserver API — fileserver

40

37 · 30 · 34

39 42 43

Location Manager — Location Cache

Data Mover

Protection Policy — Version Service — 45

repository node API — File Xfer — Local repository — 28

Internal Network

38 41 44
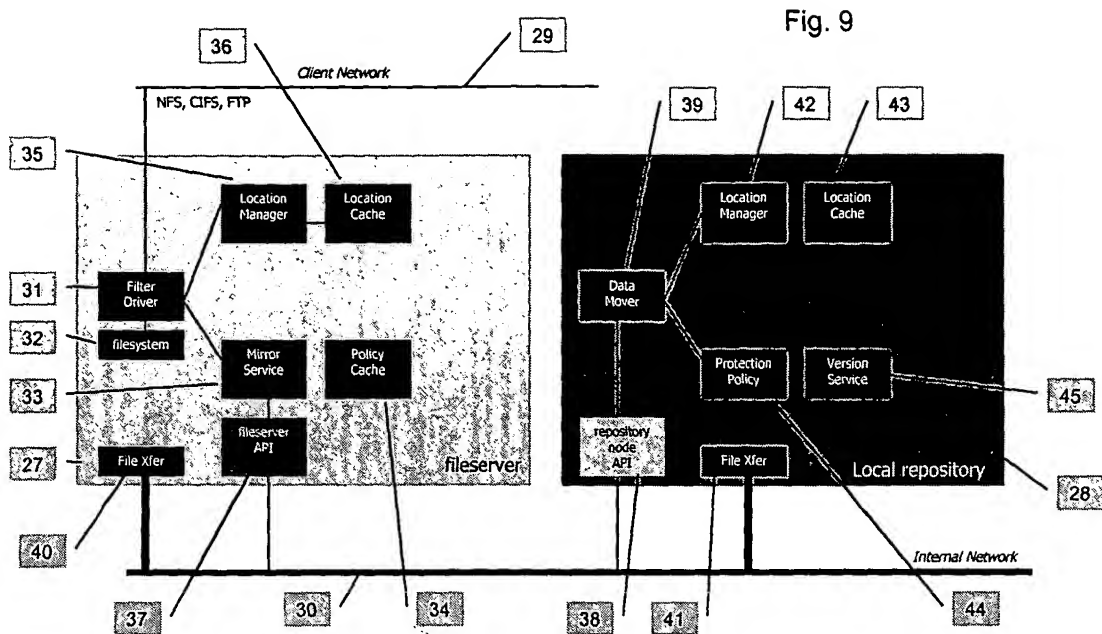
Fig 9. Apparatus and modules used to protect data to a local repository

**Fig. 10**

50 — Location Manager — Location Cache

54 — Data Mover — Replicator Service

51 — Protection Policy

52 — repository node API — File Xfer — Local repository node

Local Network

55 46

VP 48 · VP 49

Location Manager — Location Cache — 58

Data Mover — 57

Protection Policy — Version Service — 59

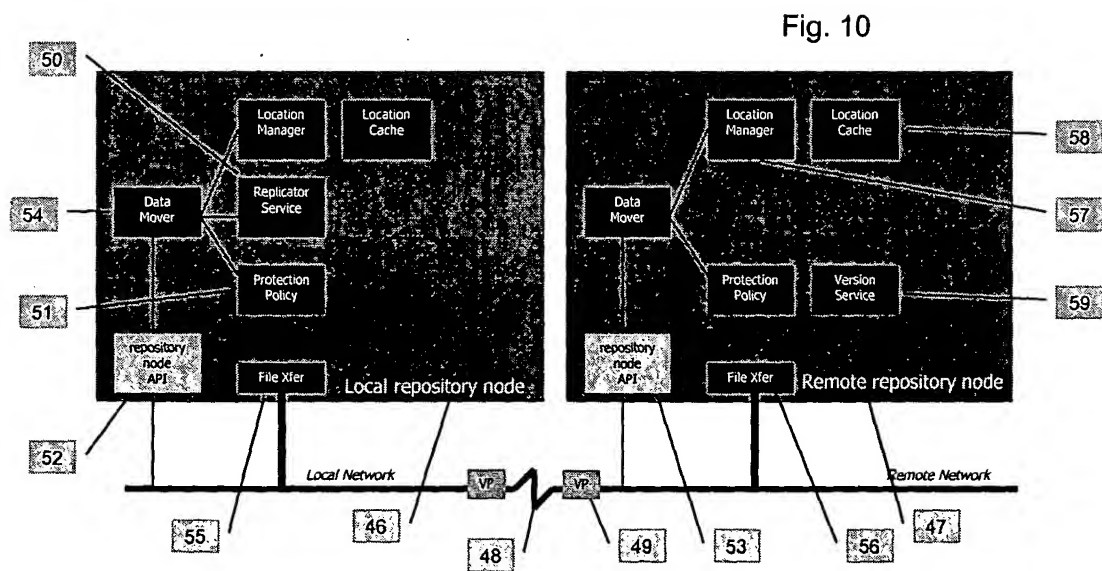repository node API — File Xfer — Remote repository node

Remote Network

53 56 47

Fig 10. Inter-repository replication